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A SUMMER'S BOTANIZING IN EASTERN MAINE AND WESTERN NEW BRUNSWICK.

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Part II. TECHNICAL NOTES ON SOME OF THE PLANTS COLLECTED.

(Plate 84.)

LYCOPODIUM ANNOTINUM L., var. PUNGENS Desv. In dryish heath, Boot Cove, Lubec. Collected also by Kennedy, Williams, Collins, and Fernald at Cutler in 1902 and by Cushman on Great Wass Island in 1907 (RHODORA, xi. 13).

LYCOPODIUM SABINAEFOLIUM Willd. Border of dry woods Ingleside, Westfield, N. B. Previously known from the upper St. John.

POTAMOGETON VASEYI Robbins. Cove in the St. John River near Ingleside Station, Westfield, New Brunswick. The first station, apparently, east of the Penobscot River.

PANICUM TENNESSEENSE Ashe. Common in gravel along the Aroostook River, extending to its mouth in New Brunswick; also collected in a clearing in Westfield, N. B., on the lower St. John. Previously unknown in New Brunswick.

SETARIA VIRIDIS (L.) Beauv., var. WEINMANNI (R. & S.) Brand in Koch, Syn. ed. 3, 2690 (1905). A plant differing from the common *S. viridis* in its depressed or spreading habit, narrower leaves (2-6 mm. wide) and slender spikes (excluding the bristles 3-6 mm. thick) is common on railway gravels and by roadsides in various parts of eastern and northern Maine, in New Brunswick and Quebec, and is found locally in Massachusetts. It occurs in such habitats about

the towns of the Lower St. Lawrence, in northern Aroostook Co., Maine, and Madawaska Co., New Brunswick; and the past summer was found by the writers along the Canadian Pacific Railway at Ft. Fairfield, Maine, and at Aroostook Junction, New Brunswick, also on the Washington County Railroad at Pembroke, Maine; and recently it has been collected by Messrs. Walter Deane and Edward L. Rand in dry soil in Swansea, Massachusetts. In the 7th edition of Gray's Manual a somewhat similar plant was included by Hitchcock under var. *brevisetata* (Döll.) Hitchc., based upon Döll's *Panicum viride* β *brevisetum* with "Aehrchen kaum ein wenig von den Hüllborsten überragt."¹ The latter plant, true var. *brevisetum*, was collected in 1884 by Dr. C. W. Swan on dumps at Lowell, Mass., Dr. Swan's material having the bristles only 3-4 mm. long, i. e. scarcely or only slightly exceeding the spikelets, and a similar plant occurs about Boundary Lake in northern Maine and adjacent Quebec. The commoner slender-spiked and narrow-leaved depressed plant of eastern and northern Maine and eastern Canada, however, has its bristles (4-6 mm. long) conspicuously longer than the spikelets and is very satisfactorily matched by material distributed by Degen & Flatt in the *Gramina Hungarica* (No. 4) as *Setaria viridis*, var. *Weinmanni*. It is noteworthy that in the American material as well as in the Hungarian specimens the purplish color of the bristles (a character emphasized by recent European authors) is developed only in a few of the most mature spikes. Roemer & Schultes² in their original description of the plant as *Setaria Weinmanni* do not mention the color of the bristles but state that their plant is intermediate between *S. glauca* and *S. viridis*, though Koch³ in his Synopsis treats it as a small purplish form of *S. viridis*: "minor saepe colore sordide purpureo suffusa," and many subsequent authors have emphasized the purple bristles. From a study of the material at hand, however, it would seem that the purple color is a less significant character of the plant than its habit, narrow leaves, and slender spikes.

ZIZANIA AQUATICA L. This narrow-leaved plant abounds in the lower waters of the Nerepis River at Westfield, New Brunswick. Although formerly reported from New Brunswick a new record is desirable in view of the recent re-segregation of *Zizania*.

¹ Döll, Fl. Baden, i. 234 (1857).

² R. & S. Syst. ii. 490 (1817).

³ Koch, Syn. 773 (1835-37).

ALOPECURUS GENICULATUS L. In a roadside ditch, Pembroke, Maine. Well known from about Portland, but otherwise unrecorded from the State.

GLYCERIA LAXA Scribn. is abundant in eastern Washington County, Maine, and was collected in Westfield, N. B. It was ordinarily easy to distinguish it from *G. canadensis*, but the number of flowers (the key-character used in the 7th edition of Gray's Manual) proved to be inconstant. In well-developed *G. canadensis* the spikelet is broader and more turgid than in *G. laxa*, but the most marked difference seems to be in the panicles. In the panicle of *G. canadensis* there are 1–3 primary branches at a node, and the panicles are only 2–3 times branched; in *G. laxa* there are ordinarily 3–5 primary branches at the middle nodes, and the panicles are 3–4 times branched.

BROMUS ALTISSIMUS Pursh is the common representative of the group along the St. John and Aroostook Rivers, and herbarium material shows it to occur in many of the river-valleys of the Gaspé Peninsula in Quebec.

ELEOCHARIS ROSTELLATA Torr. Abundant on salt marshes along Winnegance Creek, Phippsburg, Maine. Not previously reported from the state.

SCIRPUS FLUVIATILIS (Torr.) Gray is abundant in the dead water at the mouth of the Nerepis River and below it in the St. John in Westfield, N. B. It had formerly been reported from Perry, Maine, though no specimens from that station can now be found. It is abundant, however, on tidal flats of Winnegance Creek, Phippsburg, Maine, and should be looked for at the estuaries of other tidal streams of the Maine Coast.

CAREX SCOPARIA Schkuhr, var. **tessellata** n. var., humilis 2–4.5 dm. alta; inflorescentiis ovoideis 1.5–2.3 cm. longis; spicis 3–6 confertis ellipsoideo-ovoideis 6–10 mm. longis; squamis brunneis; perigyniis late ellipticis 2 mm. latis quam squama valde latioribus.

Low, 2–4.5 dm. high; inflorescence ovoid, 1.5–2.3 cm. long; spikes 3–6, mostly crowded, ellipsoid-ovoid, 6–10 mm. long; scales brown; body of the perigynia broadly elliptical, 2 mm. wide, conspicuously broader than the subtending scale.—MAINE: damp low ground, Marshfield, July 8, 1902 (*Fernald*); dry low ground, Pembroke, July 8, 1909 (*Fernald & Wiegand*, *Fernald* no. 1464). This is a peculiar short-headed plant obviously related to *C. scoparia*, but with much broader perigynia which, being wider than the dark subtending scales,

give the spikes a checkered or mottled appearance. It is as yet known only from Washington County, Maine.

CAREX ARCTA Boott. Alluvial woods along the Nerepis River, Westfield, New Brunswick. Not previously recorded from New Brunswick, though known from the upper St. John in Maine.

× CAREX HELVOLA Blytt (*C. canescens* × *norvegica*). Plants which were apparently a hybrid of *Carex canescens* and *C. norvegica* were found in a brackish marsh on the east side of Moose Island in Passamaquoddy Bay, and later a similar colony was found in a fresh-water swamp at Pembroke, Me. The specimens are mostly infertile and compare well with Scandinavian material except that the spikes are more remote, a trait traceable to our *C. canescens*, var. *disjuncta* which is more abundant than the typical form in eastern Maine.

CAREX MARITIMA O. F. Müller, var. ERECTIUSCULA Fernald, RHODORA ii. 170 (1900), known before only from Cushing, Maine, was found in some abundance in a meadow at Pembroke, Maine. The Pembroke plant is much larger than the original Cushing material, the pistillate spikes being 3.5–7.5 cm. long.

CAREX AQUATILIS Wahlenb., var. CUSPIDATA Laestad. was collected in wet meadows four or five miles apart in Pembroke. Though known from the lower St. Lawrence in Quebec, from Nova Scotia, and from northern New Jersey, this variety has not been reported, apparently, from New England. It resembles forms of *C. salina*, but is strongly glaucous.

CAREX VAGINATA Tausch, formerly known in Maine only from the Arbor Vitae swamps of Aroostook County, was found in a small open meadow-like spot in a thicket between Julia's Cove and Boot Cove, Lubec, Maine. In eastern Quebec and northern Maine it ordinarily grows in a carpet of *Hypnum*, but at the Lubec station its roots were in *Sphagnum*.

CAREX PENNSYLVANICA Lam., var. LUCORUM (Willd.) Fernald, abounds on the sunny slope of an esker near the village of Pembroke, Maine, thus extending the known range considerably east of the former supposed limits, on Mt. Desert Island and in the Penobscot Valley.

CAREX FLAVA L., var. GASPENSIS Fernald, RHODORA viii. 200 (1906) was found in profusion along the Meduxnekeag River, in springy places in thickets below Houlton. This variety, with slender subulate perigynia, has previously been known only from river-banks and marl-bogs north of the Baie des Chaleurs.

JUNCUS DICHOTOMUS Ell., var. *PLATYPHYLLUS* Wiegand, reported in *RHODORA* xi. 42, from southern Maine (i. e. upon specimens collected at Wells by Miss Furbish) was found on sand at Falmouth, Me., and later in abundance on the edge of a ditch in a boggy swamp at Pembroke, Me., thus extending its range eastward along the coast nearly to the New Brunswick border.

JUNCUS VASEYI Engelm., formerly known in New England only from the Upper St. John Valley, Orono and Clifton in the Penobscot Valley, and the region of Rangeley Lakes, was found forming a few broad stools at the border of a ditch in a boggy meadow near Ayer's Junction, Pembroke.

JUNCUS articulatus × *brevicaudatus*. A colony of plants found in a wet mossy spot on the Charlotte Road, Pembroke, Maine, was infertile and in its inflorescence combined the characteristics of these two common species, some of the inflorescences having 2-4-flowered glomerules, others having them many-flowered.

HABENARIA FIMBRIATA (Ait.) R. Br. On the meadows along Hamilton Brook, Lubec, Maine, this species is abundant and there exhibits a remarkable range of variation in the form of the lip. A series of specimens was collected showing the middle lobe of the lip varying in every conceivable degree from broadly fan-shaped with conspicuously fimbriate margin to cuneate-oblongate with barely erose tips. No other species of *Habenaria* was observed in the region.

SALIX PETIOLARIS Sm., var. *ANGUSTIFOLIA* Anders. This variety, which is usually a low shrub with tufted branchlets and comparatively short narrow entire or sub-entire leaves, is more common in eastern and northern Maine than the typical form of the species which has the mature leaves (7-12 cm. long) conspicuously toothed. Forms of the variety with either glabrate or permanently sericeous leaves are common.

SALIX SMITHIANA Willd. is a common tree willow of roadsides, hedgerows, etc. in southeastern Washington County, Maine (noted in the towns of Eastport, Lubec, and Pembroke). It has spread freely and is now thoroughly established in some places in swampy thickets where it is seen growing among native species.

COMANDRA LIVIDA Richardson. On the heath at the base of West Quoddy Head, Lubec, Maine. All the plants examined were sterile, as were those found at Roque Bluffs by Mr. C. H. Knowlton (see *RHODORA* ix. 219).

RUMEX PATIENTIA L. Throughout the southeastern section of Washington County this is the abundant *Rumex* of all open situations which are not too dry, growing freely in fields, meadows, thickets, and along roadsides. It is fully mature and dull brown in color early in August, when the less common *R. Britannica* is beginning to flower.

MONTIA FONTANA.¹ We have in North America three clearly defined species which have generally passed as *Montia fontana*. These may be briefly described as follows:—

A. Seeds dull (except under a lens), conspicuously and closely muricate with bluntish or acutish tubercles: a yellowish green annual with flowers both lateral and terminal, the latter in 3-8-flowered cymes.

1. *M. fontana* L.

B. Seeds lustrous, the tubercles obscure or short and flattened.

A deep green perennial, the branches rooting at the nodes: flowers chiefly in 3-8-flowered lateral cymes, the branches usually terminated by a tuft of leaves; seeds about 1 mm. long, very plump, slightly lustrous.

2. *M. rivularis* Gmel.

Yellowish-green annual, the simple or slightly forking stems not rooting at the nodes: flowers solitary or in pairs from the nodes and tips of the stems and branches: seeds 1-1.6 mm. long, lenticular, highly lustrous 3. *M. lamprosperma* Cham.

1. *M. FONTANA* L. Sp. i. 87 (1753), in part. *M. minor* Gmel. Fl. Bad. i. 301 (1805). Upper leaves oblong to oblanceolate and sessile: the terminal cymes sessile or short-stalked: mature capsules 2-2.5 mm. in diameter: seeds 1-1.3 mm. long.—Eurasia, Oregon and California. PLATE 84 (a).

Var. **tenerrima** (Gray) n. comb. *Claytonia Chamissonis* Eschsch., var. *tenerrima* Gray, Proc. Am. Acad. viii. 378 (1872). *C. Hallii* Gray, Proc. Am. Acad. xxii. 283 (1887). *Montia Hallii* Greene, Fl. Franciscana, 180 (1891), as to synonym. Very slender: leaves mostly broad-spatulate and petioled: cymes often long-stalked: mature capsules 1-2 mm. broad: seeds barely 1 mm. long.—British Columbia to California.

2. *M. RIVULARIS* Gmel. Fl. Bad. i. 302 (1805).—Europe. NEWFOUNDLAND: ditches, Holyrood, August 28, 1894, *Robinson & Schrenk*, no. 48. PLATE 84 (b).

3. *M. LAMPROSPERMA* Cham. Linnaea, vi. 565 (1831).—Arctic and boreal Europe; northeastern Asia; Alaska; Greenland to eastern Maine. The following specimens from eastern America have been examined. LABRADOR: Nain, *Lundberg*; Hopedale,

¹ For the plate which shows very clearly the habitat and seed-characters of the segregates of *Montia fontana* we are indebted to the generosity of Mr. F. Schuyler Mathews.

August, 1897, *J. D. Sornborger*, no. 193. NEWFOUNDLAND: Barred Islands, August 20, 1903, *J. D. Sornborger*. QUEBEC: springy places and wet pastures, Ste. Anne des Monts, July 12, 13, 1881, *J. A. Allen*; springy bank, Bic, July 26, 1907, *Fernald & Collins*, no. 1017; brackish shores, Dartmouth River, August, 1904, *Collins, Fernald & Pease*; damp mossy ground, Pointe Nouvelle, Hope, July 30, 1902, *Williams & Fernald*; muddy margins of creeks, Bonaventure River, August, 1904, *Collins, Fernald & Pease*. NEW BRUNSWICK: Shediac, *J. Fowler*, 1883. NOVA SCOTIA: wet meadow, Northwest Arm, Halifax, June 19, 1883, *J. Macoun*. MAINE: in a spring rill, Little River Island, Cutler, July 5, 1902, *Kennedy, Williams, Collins & Fernald*; Great Cranberry Isle, July 5, 1893, *E. L. Rand*; South Duck I., July 17, 1893, *J. H. Redfield*. PLATE 84 (c).

RANUNCULUS DELPHINIFOLIUS Torr., formerly unknown east of the lower Penobscot, was found carpeting the bottom of a muddy pool in Princeton on the St. Croix River.

RANUNCULUS PURSHII Richardson abounds in a shallow spring-hole in an Arbor Vitae swamp by the Meduxnekeag River in New Limerick, Aroostook County, Maine. This station, the first in New England, agrees in its obvious characteristics — a shallow pool and its adjacent muddy shores in an Arbor Vitae swamp — with the stations already known for this local species in the Gaspé Peninsula.

BRASSICA ALBA (L.) Boiss. About Eastport this is the common mustard of roadsides, railroad banks, waste places, etc., and it was found extending locally along the Washington County Railroad as far as Ayer's Junction in Pembroke. Nowhere else have we ever met it except as a casual plant of garden refuse and similar habitats.

AMELANCHIER CANADENSIS (L.) Medic., var. *TOMENTULA* Sarg. (see *RHODORA*, xi. 47) occurs locally in rocky woods at Pembroke, Maine. It has formerly been known in Maine only from the southwestern section.

CRATAEGUS COLUMBIANA Howell, var. *BRUNETIANA* (Sarg.) Egglest. was frequent about Pembroke, Maine, and specimens in the herbarium of the New England Botanical Club also identified by Mr. Eggleston show it to extend southward along the coast to Brunswick (*Miss Furbish*).

CRATAEGUS JONESAE Sarg. This is one of the most characteristic species of the coastal region of Maine, seen at various points from Pembroke to Portland Harbor. A sheet in the herbarium of the New England Botanical Club, collected by Miss Furbish at Skowhegan, shows it to extend inland to the central portion of the state.

POTENTILLA PALUSTRIS (L.) Scop., var. VILLOSA (Pers.) Lehm. This handsome variety, noted in RHODORA, xi. 48 from the Gulf of St. Lawrence, is the common form of the species in eastern Washington County, Maine, where it occurs in either fresh or brackish water.

POTENTILLA PALUSTRIS (L.) Scop., var. SUBSERICEA Becker, Deutsch. Bot. Monatschr. xv. 85 (1897), which has the leaves silky but lacks the dense glandular pubescence on the peduncles, petioles, etc., was found on the meadows of the Nerepis River at Westfield, N. B., the first station known to us in America.

AGRIMONIA GRYPOSEPALA Wallr. occurs in the alluvium of the Nerepis River, Westfield, N. B., and along the Aroostook River, Ft. Fairfield, Maine, thus extending its recorded range slightly north-eastward.

VICIA ANGUSTIFOLIA Reichard, var. UNCINATA (Desv.) Rouy & Foucaud. This variety with very narrow elongate-linear and truncate mucronulate leaflets formed depressed mats on the strand at Pleasant Point, Perry, Maine. Similar specimens were collected by Judge J. R. Churchill near Tracadie Beach, Prince Edward Island, in 1901. These are the only American collections of the variety seen by the writers.

EUPHORBIA SERYPLIFOLIA Pers. Two forms of this species, one with green leaves, the other with leaves blotched with crimson, abound in the yard of the Canadian Pacific Railway at Aroostook Junction, Andover, N. B., where they are accompanied by the ordinarily more common *E. maculata* L. and *E. hirsuta* (Torr.) Wiegand.

EUPHORBIA GLYPTOSPERMA Engelm. Abundant in the yard of the Canadian Pacific Railway at Hartland, New Brunswick, and in less abundance along the railway at Fort Fairfield, Maine.

ACER RUBRUM L., var. TRIDENS Wood. A large tree with peculiarly depressed wide-spreading top was called to our attention by Dr. G. U. Hay near his camp at Ingleside Station, Westfield, New Brunswick. This proved to have the characteristic foliage of the var. *tridens*, a variety previously unknown north of Auburndale, Massachusetts, its only known New England station (see Rehder, RHODORA ix. 116).

RHAMNUS ALNIFOLIA L'Her. occurs locally in a rich swamp on the Charlotte Road, Pembroke, Maine, near a calcareous outcrop. It was also seen in meadows of the St. Croix River below Princeton.

MALVA SYLVESTRIS L., var. MAURETIANA (L.) Boiss., which differs from the typical hirsute *M. sylvestris* with sharply angulate-lobed

leaves in being glabrous or glabrescent, in having the leaves more obtusely lobed, and in its deeper colored flowers, was found in waste ground about the site of an old fire at Pembroke, Maine. The only New England material of *M. sylvestris* seen by us — from Rumford, Maine (*Parlin*), Charlotte, Vt. (*Faxon*), and Charlestown, Mass. (*Perkins*) — is of this variety.

ŒNOTHERA CRUCIATA Nutt. Open sandy roadside near Round Pond, Charlotte, Maine. Previously unrecorded east of the Penobscot Valley.

ŒNOTHERA FRUTICOSA L., var. *HIRSUTA* Nutt. Abundant in dry open soil in an old field, Pembroke, Maine; the first station recorded in Maine east of the Penobscot Valley, where it occurs in open woods on the dry slopes of an esker in Alton.

VACCINIUM PENNSYLVANICUM Lam., var. *ANGUSTIFOLIUM* (Ait.) Gray. Very characteristic shrubs of this usually northern or alpine variety were found on the heath at the base of West Quoddy Head, Lubec, Maine. It had been found in 1902, but unrecorded, by a party from the New England Botanical Club at Cutler, Maine.

LYSIMACHIA terrestris × *thyrsiflora*. In the boggy meadow along the St. Croix River between Milltown and St. Croix Junction, Calais, Maine, occurs a *Lysimachia* which in appearance is intermediate between *L. terrestris* and *L. thyrsiflora*, and which we consider a hybrid between these species. In the foliage and density of the raceme the plant is like *L. thyrsiflora*, but the racemes are long and mostly terminal as in *L. terrestris*, though only one plant in hundreds produced inflorescences in 1909. A similar plant was collected with *L. terrestris* by Pres. Ezra Brainerd at Middlebury, Vermont, June 22, 1880.

FRAXINUS PENNSYLVANICA Marsh. occurs along the St. John River at Westfield, New Brunswick. It is also found at Fort Kent in northern Maine and therefore presumably throughout the St. John Valley.

GALEOPSIS TETRAHIT L., var. *BIFIDA* (Boenn.) Lejeune & Courtoir. Two forms of *G. Tetrahit*, quite distinct in appearance, were seen in Washington County; one with large white flowers was found in only one locality near the Eastport Railroad Station, but the other with smaller purplish flowers was much more widely distributed. A study of herbarium material and of European handbooks shows that one of these forms is a well-marked variety of the other, and is so recognized in Europe. *G. Tetrahit* in America may therefore be treated as follows:—

G. TETRAHIT L. (typical) Calyx-teeth in fruit 7.5–11 mm. long: corolla large, about 2 cm. long, with broad lower lip; the middle lobe rarely longer than broad, usually rounded, rarely emarginate, the margins flat; the nipples at the base of the lip large: leaves mostly rounded at the base: flowers (in this country) commonly white, often partly suffused with purple, rarely entirely purple.—Apparently much less common in America than the variety, and mostly confined to the north-eastern country. Specimens seen by us:—QUEBEC: Grand River, Gaspé County, August 15, 1904, *Collins, Fernald & Pease*. NEWFOUNDLAND: damp meadow near Topsail, Conception Bay, August 12–19, 1901, *Howe & Lang*, no. 1262; moist place in meadow, Torbary, August 21–26, 1901, *Howe & Lang*, no. 1400. MAINE: railroad bank, Eastport, August 16, 1909, *Fernald & Wiegand*; Middle Dam, Rangeley Lakes, August 2, 1903, *B. L. Robinson*: in grain fields, Buckfield, September 3, 1897, *J. C. Parlin*, no. 901. NEW HAMPSHIRE: Jefferson, September 14–21, 1873, *Wm. Boott*; East Andover, August, 1903, *M. A. Day*; roadside, Troy, September 11, 1897, *B. L. Robinson*, no. 365. MASSACHUSETTS: low ground, Gloucester, August 15, 1897, *W. P. Rich*. ONTARIO: vicinity of Belleville, July 27, 1876, *J. Macoun*, no. 1342.

G. TETRAHIT L., var. *BIFIDA* (Boenn.) Lejeune & Courtoir, *Compend. Fl. Belg.* ii. 241 (1831). *G. bifida* Boenn. *Prodrom. Fl. Monast.* 178 (1824). Calyx-teeth in fruit 5–8 mm. long: corolla shorter (about 14–16 mm. long) and much more slender than in the species, with smaller lower lip; the middle lobe oblong, more or less emarginate, the margins often revolute; nipples at base of lip smaller and narrower: leaves cuneate at base: color of flowers purplish, very rarely white.—The common form especially in southern New England and southward and westward.

STACHYS TENUIFOLIA Willd., var. *ASPERA* (Michx.) Fernald. A large clump of luxuriant plants was found by a small pond near the tracks of the Grand Trunk Railway, Portland, Maine; apparently the only station in the state.

ELSHOLTZIA PATRINI (Lepechin) Garcke. This fragrant plant which has been known as an established weed about Lake Temiscouata, Quebec since 1887, was found in abundance along the Bangor and Aroostook Railroad at New Limerick, Maine. Its appearance at New Limerick, more than one hundred miles south of Lake Temiscouata, indicates that it may be watched for with confidence along the intermediate traffic-lines of northern Maine and New Brunswick.

LINARIA MINOR (L.) Desf. occurs in great abundance about the yard of the Canadian Pacific Railway at Fairville, New Brunswick. It

was noted in Fowler's Catalogue as collected on a ballast wharf at St. John in 1881.

LIMOSELLA AQUATICA L., var. TENUIFOLIA (Wolf) Pers., which has long been on the unverified list as a Maine plant, occurs in brackish mud with *Lophocarpus spongiosus*, *Samolus floribundus*, etc. along Winnegance Creek, Phippsburg, Maine. *Limosella* was reported by Goodale from Scarborough in 1862 (Proc. Portland Soc. Nat. Hist., i. pt. 1, 57) but no specimens from that station are extant.

EUPHRASIA RANDII Robinson, var. FARLOWII Robinson. At the type locality (Dog Island, near Eastport, Maine) and near the light house at the tip of West Quoddy Head, Lubec, this plant seemed to be specifically distinct from the commoner *E. Randii*. The latter plant had larger smoother leaves, and the crimson corollas were yellow or yellowish-green in the throat; while in the var. *Farlowii*, with smaller and thicker densely hirtellous leaves, the more crowded flowers had the white corollas striped with purple, but without the yellow throat. Upon studying a large series of specimens, however, from Newfoundland, Quebec, Nova Scotia, and Maine, these characters were all found to vary to such an extent that they seem at best only varietal.

EUPHRASIA AMERICANA Wettst. is ordinarily a coastal species but it was found in sterile soils as far up the St. Croix Valley as we explored, at Princeton, Maine, and later in New Limerick in southern Aroostook County, Maine. This latter station and one on slaty open soil at Oldtown, Maine, are exceptionally far inland.

RHINANTHUS CRISTA-GALLI L. The common American plant treated as *R. Crista-Galli* in the 7th edition of Gray's Manual has the stems (in living plants at least) black-lineolate, and the teeth of the upper lip of the corolla bluish or violet. This form of the species is recognized by European students of the genus as a well-marked variety, var. FALLAX (Wimmer & Grab.) Druce, Fl. Berks. 384 (1897) based upon *Alectorolophus minor*, β *fallax* Wimmer & Grab. Fl. Siles i. pt. 2, 213 (1829). It has by some recent authors been known as *Alectorolophus minor*, var. *vittulatus* Gremler, Excursionsf. für die Schweiz ed. 4, 320 (1881). True *R. Crista-Galli*, as interpreted by recent European authors, lacks the black striations on the stem and the violet coloring in the upper lip. This plant was collected on Great Diamond Island in Portland Harbor by Messrs. Bissell and Wiegand, July 5th, and should be watched for elsewhere on our coast. From *R.*

oblongifolius Fernald the typical *R. Crista-Galli* is readily distinguished by its numerous branches (in all but stunted or undeveloped plants), its lance-attenuate leaves, and the strong tendency to blacken in drying.

GALIUM LABRADORICUM Wiegand, hitherto known in Maine only from the northern half of the state, was found in a sphagnous marsh near the edge of a salt marsh on the east side of Moose Island in Passamaquoddy Bay, Maine.

GALIUM BOREALE L. A number of fine plants were found at the edge of a boggy meadow in Pembroke, Maine.

ASTER RADULA Ait., var. *STRICTUS* (Pursh) Gray was found generally distributed on heaths and boggy swales in Lubec, Maine. It has formerly been known in Maine from Mt. Katahdin and from the Dead River and Rangeley regions.

IVA XANTHIFOLIA Nutt. Many plants three meters high were seen in a thicket with *Solidago canadensis* and other native species near the railroad station at New Limerick, Aroostook County, Maine. The species seemed entirely at home, though presumably of recent introduction.

BIDENS HYPERBOREA Greene, *Pittonia* iv. 257 (1901), discussed in more detail by Fernald in *RHODORA* x. 201 (1908), has been known only from James Bay and from brackish or saline mud at the estuaries of rivers of the Gaspé Peninsula, Quebec. In August it was found in brackish mud along Winnegance Creek, Phippsburg, Maine, thus extending its range from the north shore of the Baie des Chaleurs.

MATRICARIA CHAMOMILLA L., var. *CORONATA* (J. Gay) Cosson & Germain, differing from the typical form of the species in having the pappus in the form of a broad dentate crown instead of obsolete, is an abundant weed of roadsides, waste-places, sea-strands, etc. in eastern-most Maine. This plant, which has the delicious pine-apple fragrance of *M. suaveolens*, was seen in Maine in the towns of Eastport, Lubec, Trescott, Whiting, and Calais, and was afterward seen along the streets of St. John, New Brunswick.

ARTEMISIA FRIGIDA Willd. Several clumps were seen in gravel about the yards of the Canadian Pacific Railway, Fairville, New Brunswick, though apparently not so thoroughly established as *A. LUDOVICIANA* Nutt.

ARTEMISIA PONTICA L., an old garden plant rarely flowering with us, is spreading to roadsides, railroad yards, etc., and should receive recognition in our manuals. It was found in considerable abundance

in the yard of the Grand Trunk Railway at Portland, Maine, and by a roadside in Pembroke, Maine.

ARNICA MOLLIS Hook., var. *PETIOLARIS* Fernald. A small colony of this plant was found in a marly, springy spot at the foot of a steep bank below the Falls of the Aroostook River about one mile above Four Falls, New Brunswick. This is the first station recorded east of Moxie Falls, Somerset County, Maine.

LAPSANA COMMUNIS L. This plant was found in considerable abundance along the pavement on one of the streets of Rockland. It has previously been found on Mt. Desert Island and perhaps elsewhere, but is a rare plant in Maine.

SONCHUS ARVENSIS L., var. *GLABRESCENS* Wimmer & Grabowski, Fl. Sil. pt. 2, ii. 220 (1829). In the typical form of the species the peduncles and involucre are more or less densely glandular-hirsute. This form is the ordinary one found throughout the range of the species in America. However, a colony was found along the strand on Carlow Island, Passamaquoddy Bay, the involucre and pedicels of which were entirely glabrous. This evidently is the form recognized in Europe as var. *glabrescens* W. & G. In addition to these plants we have seen specimens of this variety from MAINE: Limestone, September 10, 1896, *Fernald*; Dover, September 1, 1894, *Fernald*. MASSACHUSETTS: Lenox, August 24, 1902, *R. Hoffmann*. OHIO: near Soldier's Home, Erie County, August, 1902, *W. P. Holt*. It seems, therefore, to have a fairly wide distribution.

LACTUCA CANADENSIS L., and *L. HIRSUTA* Muhl. Although no specimens of *L. hirsuta* were collected, the occurrence of occasional plants of *L. canadensis* with the petioles and midribs of the basal leaves hirsute makes it desirable to distinguish these two species, if possible, by some other characters. A study of the material in the Gray Herbarium and the Herbarium of the New England Botanical Club shows that good characters may be drawn from the achenes, and that there are also some other minor differences. The leaves, though variable as in most species of *Lactuca*, nevertheless show some tendencies which are helpful. The two species differ as follows:—

L. HIRSUTA. Lateral leaf-divisions oblong-obovate, commonly broadest above the base, often more or less truncate, usually dentate: involucre, when fully developed, 16–22 mm. long: mature achenes 7–9 mm. long from base to tip of beak: pappus 9–12 mm. long.

L. CANADENSIS. Lateral leaf-divisions rarely oblong or obo-

vate, usually lanceolate to linear, commonly broadest at the base, usually acute and frequently entire: involucre 10–14 mm. long: mature achenes 5–6 mm. long: pappus 5–7 mm. long.

HIERACIUM FLORIBUNDUM Wimm. & Grab. This is the common introduced *Hieracium* of the fields and roadsides in southeastern Washington County, Maine, and has been collected as far east as St. John, New Brunswick. It is now established in great abundance around Passamaquoddy Bay, but was first recorded from America by Dr. Kennedy (RHODORA, iv. 25) who found it sparingly at Cutler in 1901.

EXPLANATION OF PLATE 84.

- Fig. a. *Montia fontana*, plant and seed, natural size, and seed $\times 15$.
 Fig. b. *M. rivularis*, portion of plant and seed, natural size, and seed $\times 15$.
 Fig. c. *M. lamprosperma*, plant and seed, natural size, and seed $\times 15$.

NOTES ON CONNECTICUT MOSSES.

G. E. NICHOLS.

SINCE the publication a little over a year ago of "The Bryophytes of Connecticut"¹ a number of additions have been made to the mosses known to occur within the state and, as will appear in the present paper, it has been found necessary to make several changes in the list of species given in the catalogue.

REVISION OF THE EPHEMEREAE.

During the past fall the writer devoted especial attention to the study of the *Ephemereae*, a sub-family of the *Funariaceae* which, according to the classification of Brotherus,² contains the two North American genera *Nanomitrium* Lindb.³ (= *Micromitrium* Aust.⁴

¹ Evans, A. W., and Nichols, G. E. Conn. Geol. and Nat. Hist. Surv. Bull. 11. 1–203. Hartford. 1908.

² Engler-Prantl's Natürliche Pflanzenfamilien Part 1. 3:512. 1903.

³ Notis. pro Fauna et Flor. Fenn. 13:408. 1874.

⁴ Musci Appal. Exsic. 1870.